

IN THE CLAIMS

1. (Currently Amended) A method for renting and charging a storage system in which an owner of the storage system rents and charges a rental charge to a user of the storage system,

wherein ~~said~~ a storage device has a channel control unit which is connected to a host computer and <sup>to</sup> responds requests *obj.* from the host computer;

a cache memory which stores data sent by the host computer under control of said channel control unit;

*1* a disk control unit which controls a plurality of storage devices so as to store said data stored in said cache memory into said storage devices and

a shared memory which stores control information according to said channel control unit and said disk control unit, comprising the steps of:

holding requests of using <sup>1 B 7.</sup> said disk devices in said shared memory, which <sup>2</sup> *obj. OK.* are set by an operating unit connected to said channel control unit or disk control unit;

recording information of a state of use of said disk devices into a use management table in accordance with said requests of using said disk devices;

reading said information of said state of use by referring to said use management table under control of said channel control unit or said disk control unit; and

sending said read information of said state of use under control of said channel control unit or said disk control from the storage system to a charging system of said ~~user~~ owner.

2. (Previously Presented) The method for renting and charging a storage system according to claim 1, further comprising the steps of:

inputting said information of said state of use according to said disk devices; and

updating said inputted information of said state of use according to said disk devices to said use management table by said user.

3. (Currently Amended) The method for renting and charging a storage system according to claim 2, further comprising the step of:

transferring starting information for indicating that said user starts using said storage system from said storage system to said charging system,

wherein in response to said starting information, said charging system of said owner starts charging to said user.

4. (Currently Amended) A method for renting and charging a storage system, in which an owner of a storage system rents and charges the storage system to a user of the storage system,

wherein said storage system is set in a user site and charging system is set in an owner site, and

wherein a storage device has a channel control unit which is connected to a host computer and responds requests from the host computer;

a cache memory which stores data sent by the host computer under control of said channel control unit;

a disk control unit which controls a plurality of storage devices so as to store said data stored in said cache memory into said storage devices and

a shared memory which stores control information according to said channel control unit and said disk control unit,

comprising the steps of:

holding requests of using said disk devices in said  
shared memory, which are set by an operating unit connected to  
said channel control unit or disk control unit;

recording information of a state of use of said disk  
devices into a use management table in accordance with said  
requests of using said disk devices;

reading said information of said state of use by  
referring to said use management table under control of said  
channel control unit or said disk control unit;

61 sending said read information of said state of use under  
control of said channel control unit or said disk control from  
the storage system to a charging system of said owner;

sending a user identification ID, a usable volume for  
said user at an initial setting stage, and an additional  
volume that cannot be used unless said user conducts a new  
operation for adding the additional volume with an operating  
unit from said storage system in said user site to a charging  
system of said owner in said owner site; and

charging said user of said user identification ID for  
said usable volume for said user at an initial setting stage  
and said additional volume added by said new operation by said  
charging system in said owner site.

5. (Previously Presented) The method for renting and charging a storage system according to claim 4, wherein <sup>the/said</sup> a usable volume for said user at <sup>the</sup> an initial setting stage and said additional volume include at least one of a disk volume and a cache volume provided in said storage system.

6. (Previously Presented) The method for renting and charging a storage system according to claim 4, wherein charging for <sup>the</sup> a usable volume for said user at <sup>the</sup> an initial setting stage is calculated by compensation for said unusable volume, and charging for said additional volume is calculated by compensation for a used volume of said additional volume.

7. (Previously Presented) The method for renting and charging a storage system according to claim 5, wherein charging for <sup>the</sup> a usable volume for said user at <sup>the</sup> an initial setting stage is calculated by compensation for a volume, and charging for said additional volume is calculated by compensation for a used volume of said additional volume.

8. (Previously Presented) The method for renting and charging a storage system according to claim 6, wherein

charging for said additional volume is further calculated by compensation for an unused volume of said additional volume.

9. (Previously Presented) The method for renting and charging a storage system according to claim 7, wherein charging for said additional volume is further calculated by compensation for an unused volume of said additional volume.

10. (Currently Amended) The method for renting and charging a storage system according to claim 7, further comprising the step of:

transferring starting information for indicating that said user starts using said storage system from said storage system in said user site to said charging system of said owner in said owner site, wherein the charging system of said owner starts charging to the user.

11. (Currently Amended) The method for renting and charging a storage system according to claim 8, further comprising the step of:

transferring starting information for indicating that said user starts using said storage system from said storage system in said user site to said charging system in said owner

site, wherein the charging system of said owner starts charging to the user.

12. (Previously Presented) The method for renting and charging a storage system according to claim 11, wherein charging is started after a predetermined period elapses from the point of reception of said starting information.

13. (Currently Amended) The method for renting and charging a storage system according to claim 11, further comprising the step of:

starting charging after a predetermined period elapses from the point of reception of said starting information by said charging system of said owner.

14. (Currently Amended) The method for renting and charging a storage system according to claim 1, further comprising the steps of:

reading an unused volume from said use management table held in said storage system in said user site; and

sending said read unused volume from the storage system to the charging system of said owner in said owner site.

15. (Currently Amended) The method for renting and charging a storage system according to claim 1, further comprising the step of:

copying data stored into said storage system in said user site to another storage system in said user site, wherein charging of said another storage system is set at a rate lower than that of said first storage system.

16.-20. (withdrawn)

21. (Currently Amended) In a system having a storage system that is owned by an owner and rented to a user, a method for renting and charging for the use of the storage system,

wherein said storage system is set in a user site and a charging system is set in an owner site, and

wherein said storage device has a channel control unit which is connected to a host computer and responds requests from the host computer;

a cache memory which stores data sent by the host computer under control of said channel control unit;



a disk control unit which controls a plurality of storage devices so as to store said data stored in said cache memory into said storage devices and

a shared memory which stores control information according to said channel control unit and said disk control unit,

comprising the steps of:

holding requests of using said disk devices in said shared memory, which are set by an operating unit connected to said channel control unit or disk control unit;

recording information of a state of use of said disk devices into a use management table in accordance with said requests of using said disk devices;

reading said information of said state of use by referring to said use management table under control of said channel control unit or said disk control unit;

sending said read information of said state of use under control of said channel control unit or said disk control from the storage system to a charging system of said owner;

~~providing the user with an initial volume of storage space of the storage system;~~

charging the user for use of ~~the~~ an initial volume of storage space of the storage system in said user site at a predetermined rate by said charging system in said owner site;

providing an added volume of storage space of the storage system in said user site as needed by the user;

charging the user for a portion of the added volume that is actually used by the user by said charging system in said owner site;

wherein the owner of the storage system is notified when the user begins using a portion of the added volume.

61  
22. (Previously Presented) The method according to claim 21, wherein after a fixed period of time determined by a contract, the user is charged for the portion of the added volume actually used and a percentage of the portion of added volume that is not used.

23. (Previously Presented) The method according to claim 21, wherein information about the state of use of the ~~the~~ storage system by the user is recorded in a management table, *same/2.17* and wherein the state of use information stored in the management table is used in order to determine how much the user is to be charged for renting the storage system.

24. (Currently Amended) The method according to claim 21, further comprising the step of:

copying data stored in a first portion of the storage system in said user site into a second portion of the storage system in said user site and charging the user for the use of the second portion of the storage system at a rate lower than for use of the first portion of the storage system by said charging system in said owner site.

25. (Currently Amended) The method according to claim 21, further comprising the steps of:

providing a display terminal to the user in said user site; and

providing a display terminal to the owner in said owner site;

wherein both the user's display terminal and owner's display terminal are connected to the storage system via the internet so that both terminals can receive information regarding the state of use of the storage system by the user.

26. (Previously Presented) The method according to claim 22, wherein information about the state of use of the storage

system by the user is recorded in a management table, and *Some/MH* wherein the state of use information stored in the management table is used in order to determine how much the user is to be charged for renting the storage system.

27. (Currently Amended) The method according to claim 26, further comprising the steps of:

providing a display terminal to the user in said user site; and

providing a display terminal to the owner in said owner site;

↻ wherein both the user's display terminal and owner's display terminal are connected to the storage system via the internet so that both terminals can receive information regarding the state of use of the storage system by the user.

28. (Currently Amended) The method according to claim 27, further comprising the step of:

copying data stored in a first portion of the storage system in said user site into a second portion of the storage system in said user site and charging the user for the use of the second portion of the storage system at a rate lower than

Serial No. 09/987,815

NIT-308

8) for use of the first portion of the storage system by said  
charging system in said owner site.

---